

CLAIMS

1. An automatic surveying system, comprising:

a surveying device;

5 a collinear-line calculating processor that obtains a collinear line which satisfies a collinear condition for an arbitrarily designated point on a schematic image of which the positional relation to said surveying device is known;

10 a sighting-direction control processor that controls a sighting direction of said surveying device to move along said collinear line;

an object point searching processor that searches for an object point, where the position of said object point can be determined as a point on said collinear line by measuring said sighting direction with said surveying device while carrying out the sighting direction control process; and

15 wherein a position obtained by said object point searching processor coincides with an object point that corresponds to said designated point on said schematic image.

2. A system according to claim 1, further comprising a position relation calculating processor that calculates
25 said positional relation between said surveying device

and said schematic image, and wherein said positional relation is calculated from surveying information of at least three arbitrarily designated control points and the position of said control points on said schematic image.

5 3. A system according to claim 2, further comprising an input device that enables a designation of a point on said schematic image, and said control points are defined by designating arbitrary points on said schematic image by using said input device.

10 4. A system according to claim 1, further comprising an input device that enables a designation of a point on said schematic image, and a point on said schematic image, which is to be searched for in said object point searching processor, is arbitrarily designated on said
15 schematic image by using said input device.

5. A system according to claim 4, wherein one of a line and a curvature line on said schematic image can be defined by said input device, and the object point searching process is carried out for a plurality of
20 points included in one of said line and said curvature line.

6. A system according to claim 4, wherein an enclosed curvature line on said schematic image can be defined by said input device, and the object point searching process
25 is carried out for a plurality of points which are

surrounded by said enclosed curvature line.

7. An automatic surveying system, comprising:

5 a position relation calculating processor that calculates a positional relation between a coordinate system to which measurement information of a measurement point refers and a schematic image of a surveying field, in which said schematic image includes said measurement point;

10 a correspondence establishing processor that establishes correspondence between measurement information of said measurement point and position information of a point corresponding to said measurement point on said schematic image, with respect to said positional relation;

15 an input device that enables a designation of a measurement point on said schematic image; and

20 a sighting direction control processor that controls a sighting direction of a surveying device in accordance with a position of said measurement point designated on said schematic image by using said input device.

8. A system according to claim 7, wherein said schematic image is captured such that the center of projection of an imaging optical system for capturing said
25 schematic image is disposed at a position that is

optically equivalent to a sighting origin of said surveying device, and said sighting direction control processor obtains angular information of a sighting point, with respect to said coordinate system, from two-dimensional position information of said sighting point designated on said schematic image by using said input device, and exterior orientation parameters of an imaging device which captured said schematic image, and wherein said surveying device is sighted to a direction corresponding to said angular information.

9. A system according to claim 8, wherein said measurement point is indicated on said schematic image in accordance with three-dimensional position information of said measurement point, when said surveying information of said measurement point comprises given geographical data including a staking point, and controls the sighting operation of said surveying device by regarding a measurement point, designated by said input device, from a plurality of said measurement points as said sighting point.

10. A system according to claim 9, wherein an indication of said measurement point on said schematic image is changed when said measurement point is sighted by said surveying device.

11. A system according to claim 7, wherein said

sighting point is indicated on said schematic image.

12. A system according to claim 11, wherein an indication of said sighting point on said schematic image is changed when said sighting point is sighted by said surveying device.

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